

## 205-R-636 STORM WATER MANAGEMENT

(Revised 05-25-17)

The Standard Specifications are revised as follows:

SECTION 101, AT VARIOUS LINES, INSERT AS FOLLOWS:

<i>BMP</i>	<i>best management practice</i>
<i>CESSWI</i>	<i>Certified Erosion Sediment and Storm Water Inspector</i>
<i>CISEC</i>	<i>Certified Inspector of Sediment and Erosion Control</i>
<i>CPESC</i>	<i>Certified Professional in Erosion and Sediment Control</i>
<i>NOS</i>	<i>Notice of Sufficiency</i>
<i>RECP</i>	<i>rolled erosion control product</i>
<i>SWQCP</i>	<i>Storm Water Quality Control Plan</i>
<i>SWQM</i>	<i>Storm Water Quality Manager</i>

SECTION 108, DELETE LINES 116 THROUGH 220.

SECTION 108, AFTER LINE 221, INSERT AS FOLLOWS:

*For those contracts requiring IAC 327 15-5, having waterway permits, and storm water management, the Contractor shall locate, install, maintain and remove temporary sediment and erosion control BMPs, for earth disturbing activity areas, and develop a SWQCP, for the Engineer's acceptance, in accordance with 205.*

*Where required by IAC 327 15-5, stockpile and storage sites shall be permitted by an IDEM NOS. An NOI with an IDEM time stamp 48 hours prior to the beginning of operations at the sites shall also meet these requirements. The Contractor shall obtain an NOS, or IDEM time stamped NOI submitted to the Engineer prior to the beginning of operations at those locations. Borrow and disposal sites shall be in accordance with 203.08.*

*For those contracts not requiring IAC 327 15-5, having no waterway permits, and not requiring storm water management, the contractor shall submit a written site plan to the Engineer describing the following:*

- 1. A description of the contract site.*
- 2. The locations of all equipment storage areas, fueling locations, construction trailers, batch plants, and designated concrete truck washout locations.*
- 3. A material handling and spill prevention plan.*

*The site plan shall be submitted for acceptance 14 calendar days prior to the start of construction activity.*

*The cost of preparation and implementation of the site plan described above shall be included in the cost of the other items of the contract.*

SECTION 108, BEGIN LINE 245, DELETE AS FOLLOWS:

~~*The cost of preparation of the erosion control plan shall be included in the cost of the erosion and sediment control items.*~~

SECTION 109, BEGIN LINE 821, DELETE AND INSERT AS FOLLOWS:

**~~(g) Erosion and Sediment Control, E&S~~ Storm Water Management**

Quality adjustments will be calculated in accordance with 205.08.

SECTION 205, DELETE LINES 1 THROUGH 516.

SECTION 205, BEGIN LINE 1, INSERT AS FOLLOWS:

**SECTION 205 - STORM WATER MANAGEMENT**

**205.01 Description**

*This work shall consist of furnishing, installing, maintaining, and removing storm water management measures in accordance with the Department's Design SWPPP, the submitted and accepted Contractor developed SWQCP, and 105.03.*

**MATERIALS**

**205.02 Materials**

*Materials shall be in accordance with the following:*

<i>Coarse Aggregate, Class F or Higher .....</i>	<i>904</i>
<i>Fertilizer.....</i>	<i>914.03</i>
<i>Filter Sock .....</i>	<i>914.09(h)</i>
<i>Geotextile .....</i>	<i>918.02</i>
<i>Grass Seed, Temporary.....</i>	<i>914.02</i>
<i>Manufactured Surface Protection Products.....</i>	<i>205.04(c)</i>
<i>Metal End Sections.....</i>	<i>908.06</i>
<i>Mulch.....</i>	<i>914.05(a)</i>
<i>Pipe Drains .....</i>	<i>715.02(d)</i>
<i>Plastic Net .....</i>	<i>914.09(g)</i>
<i>Revetment Riprap .....</i>	<i>904*</i>
<i>Stakes.....</i>	<i>914.09(b)</i>
<i>Staples .....</i>	<i>914.09(f)</i>
<i>Top Soil .....</i>	<i>914.01</i>
<i>Water .....</i>	<i>914.09(a)</i>

*\*The minimum depth does not apply. Straw bales shall not weigh less than 35 lb. Bales shall be bound with wire or nylon twine.*

**CONSTRUCTION REQUIREMENTS**

**205.03 General Requirements**

*The Contractor shall locate, install, maintain and remove storm water management control BMPs for earth disturbing activity areas, and develop a SWQCP, in accordance with IAC 327 15-5. The Contractor's SWQCP shall be a required contract specific component to the Department's Design SWPPP. The submitted and accepted Contractor's SWQCP and the Department's Design SWPPP shall work in coordination with each other to complete the requirements of IAC 327 15-5.*

**(a) Storm Water Quality Control Plan Development**

*The Contractor's SWQCP shall be developed by a professional engineer who holds a current CPESC or CPESC In-Training certification or approved equivalent. The*

*SWQCP developer shall be familiar with the project site and be able to develop the SWQCP in accordance with the site conditions. In the event of conflict between requirements, pollution control laws, rules, or regulations of other Federal, State or local agencies, the Contractor's SWQCP shall adhere to the more restrictive laws, rules, or regulations. The SWQCP developer shall issue clarifications, correct errors and omissions, and revise the SWQCP as required. The Contractor's SWQCP shall be stamped by the SWQCP developer as defined above.*

*The Contractor shall develop the project SWQCP for all applicable storm water management measures in accordance with 327 IAC 15-5, Chapter 205 of the Indiana Department of Transportation Design Manual, the IDEM "Indiana Storm Water Quality Manual", ITM 803, and all other applicable contract documents.*

*The Contractor's SWQCP shall incorporate all narrative information, plan sheets, and implementation information necessary for storm water management utilized for the project. The SWQCP shall include any revisions to the Department's Design SWPPP and the plans to comply with all known permit requirements applicable to the construction phase of the project included in the NOI, 401 and 404 permits, and all other permits as well as those required by the Contractor in accordance with 107.01 and 205.03(c).*

*A copy of the Contractor's offsite operations permits for items such as offsite stockpiles, borrow sites, waste sites, or storage areas shall be submitted to the Engineer prior to operations at those sites.*

*Electronic files of any plan sheets and narratives shall be provided in .pdf format.*

*The Contractor may elect to prepare and submit the SWQCP in multiple phases. The first phase of the SWQCP shall show the location, installation, and maintenance of storm water management BMPs for the existing topography of the project during clearing activities and prior to earth disturbing activities for the remaining construction. The first phase of the SWQCP shall be submitted prior to subsequent phases. Additional phases shall show the progression from the existing topography to the final grade and shall be submitted for review prior to earth disturbing activity for that phase. Each phase of the SWQCP shall be modified to meet existing field conditions as needed.*

*If a governmental agency or a local governmental authority finds a violation of NPDES or any other surface water permits provided in the bid documents, or any BMPs are incomplete, or the Contractor's SWQCP is incomplete, full responsibility shall be borne by the Contractor to make corrections. In addition if an assessment, damage judgment or finding, agreed order, fine, or any other expense for a violation of the contract requirements is leveled against the Department, the Contractor shall reimburse the State for that amount within 30 days. The Contractor agrees to indemnify and hold harmless the Department and will reimburse the Department for any assessments, damage judgments or finding, fine, penalty or other expense relating to this portion of the contract. The Department may withhold the amount owed from the Contractor's subsequent pay estimates. Delays caused by stop work orders from regulatory agencies, suspension of work orders from the Department, or any other delays caused by*

*inadequate submittals or implementation will be considered Non-Excusable Delays in accordance with 108.08(c).*

***(b) Storm Water Quality Manager***

*The Contractor shall designate one person as the contract SWQM. The designated individual shall be trained as a level 1 or level 2 SWQM as indicated within the contract documents. The SWQM training level shall meet or exceed the level required within the contract documents.*

***1. Level 1 SWQM***

*A level 1 SWQM shall have successfully completed the Department's Construction Storm Water Training course and hold a current training verification document for that course.*

***2. Level 2 SWQM***

*A level 2 SWQM shall meet the requirements of 205.03(b)1, and hold a current certification as a CESSWI, or a CESSWI In-Training, or a CISEC, or a CISEC In-Training, or a CPESC, or a CPESC In-Training, or an approved equivalent.*

*The SWQM shall be responsible for ensuring that the Contractor's SWQCP has been submitted for review prior to implementation. The SWQM shall also be in responsible charge of the implementation of the Contractor's SWQCP. Implementation of the SWQCP includes installation, maintenance, and removal of all storm water management measures. The SWQM shall also be in responsible charge of the weekly and post-event inspections. The inspections shall be documented electronically using the Storm Water, Erosion, and Sediment Control Inspection Report which is available on the Department's website or provided by the Engineer.*

*The SWQM shall attend the pre-construction conference and at least one contract scheduling meeting per calendar month. The SWQM shall accompany personnel from IDEM or other governmental agencies, as required, during site visits by those agencies. The name of the SWQM shall be furnished to the Engineer at, or prior to, the pre-construction conference. If the designated individual is replaced during the contract, the replacement shall be designated, and notification given to the Engineer within 24 hours.*

***(c) Storm Water Quality Control Plan Content***

*The Contractor's developed SWQCP shall include the processes and procedures of how the Contractor intends to meet the requirements as outlined in this section and in accordance with ITM 803, Contractor Quality Control Plan for Storm Water.*

*Any individual phase of the SWQCP shall be submitted to the Engineer for review a minimum of 14 calendar days prior to commencing earth disturbing activities for that phase. Upon receipt, the Engineer will perform a review of the submitted phase of the SWQCP within 14 calendar days for acceptance.*

*At a minimum, the SWQCP shall include the following:*

- 1. Description of the site.*

2. *Locations of all proposed top soil stockpiles.*
3. *Locations of all proposed equipment storage areas, fueling locations, construction trailers, batch plants, and designated concrete truck washout areas.*
4. *Proposed construction sequence and phasing of storm water management measures including plans for installation, maintenance, and removal of BMPs.*
5. *Locations and design flow from offsite areas that drain onto project limits. The SWQCP design shall include BMPs properly sized and placed to accommodate runoff from outside of the project limits and the drainage quantity from within the project limits.*
6. *Locations of all construction entrances where vehicles and equipment will enter and exit the site.*
7. *Material handling and spill prevention plan. A plan for the collection, storage, and disposal of concrete washout waste water shall be in accordance with 205.03(d).*
8. *Statements that the storm water management measures for the project shall, at a minimum, be inspected on a weekly basis and within 24 h of every 1/2 in. rain event.*
9. *Provisions to ensure that pollutants such as fuels, lubricants, asphalt, sewage, wash water, or waste from concrete mixing operations, and other harmful materials shall not be discharged into existing bodies of water.*
10. *Provisions to ensure that all applicable regulations and statutes relating to the prevention and abatement of pollution shall be complied with in the performance of the contract.*
11. *Statements that all appropriate storm water management items shall be in place prior to disturbing the project site.*

*When Waters of the United States are located within the project limits the following shall also be addressed in the SWQCP:*

1. *A method for delineating the boundaries of the Waters of the United States as shown on the plans.*
2. *A method for conducting work located in or adjacent to bodies of water, and how the work in those locations shall be conducted in*

*compliance with all conditions within the project 401, and 404 permits.*

***(d) Temporary Storm Water Management Features***

*Temporary storm water management measures shall be placed as soon as practicable. Perimeter protection and sediment traps shall be installed prior to beginning earth disturbing activities. Pipe end sections and anchors shall be installed when the structure is installed. If the pipe end sections or anchors cannot be placed at the same time, temporary riprap splashpads shall be placed at the outlets of the pipes until end sections or anchors can be installed.*

*Adjustments of the storm water management measures shall be made to satisfy field conditions and shall be subject to the Engineer's approval. Adjustments made to meet field conditions shall be made as soon as practicable and shall be maintained as necessary.*

*The Contractor shall provide a stable construction entrance at the points where construction traffic will enter onto an existing road. Where there is insufficient space for a stable construction entrance, other measures shall be taken to prevent the tracking of sediment onto the pavement. These temporary entrances shall be the responsibility of the Contractor to completely install, maintain, and remove.*

*Within the SWQCP, the Contractor shall provide a written plan for the collection, storage, and disposal of concrete washout waste water that is adequate for the size of the concrete pour, the environmental conditions of the job site, and in accordance with IAC 327 15-5-7(2) and IAC 327 15-13-17(2)(F). A secondary washout container shall be on site and be part of the material handling and spill prevention plan. Straw bale washout pits will not be allowed. Concrete washout waste water may either be recycled back into the truck, washed out into a lined roll off container or a lined in-ground pit of adequate size, or an approved manufactured product, or taken back to a batch plant. Lining shall consist of a minimum of one sheet of 10 mil plastic, be continuous with no over lapping, and free of leaks.*

*Concrete waste water liquid shall be fully evaporated prior to the planned capacity of the washout container capacity being exceeded. Otherwise the waste water shall be pumped out into a secondary lined container or into a tanker and taken to an approved disposal facility. Concrete waste water shall not be allowed to leak onto the ground, run into storm drains, or into any body of water. Where washout waste water leaks onto the ground, all contaminated soils shall be excavated and disposed of in accordance with 202.08 except that all costs associated with excavation and disposal shall be the responsibility of the Contractor.*

*The installation of storm water management measures shall include those necessary or required by permits at off-site locations such as borrow and disposal areas, field office sites, batch plants, locations where the Contractor's vehicles enter and leave public roads, and other locations where work pertaining to the contract is occurring. The Contractor's SWQM shall be responsible for the installation, inspection, and maintenance of these measures.*

*The Contractor shall employ dust control measures in accordance with 107.08(b).*

***(e) Permanent Storm Water Management Features***

*Permanent storm water management measures shall be incorporated into the work at the earliest practicable time.*

***205.04 Temporary Surface Stabilization***

*Non-vegetated areas shall be temporary stabilized if the area remains inactive for more than seven days. The area will be considered inactive when no meaningful work toward accomplishing a pay item has been performed at a site of disturbed soil. Stabilization methods shall be as shown in the SWQCP.*

***(a) Seed***

*Temporary seeding shall be placed on disturbed areas that are expected to be inactive for more than seven days, or as agreed to by the Contractor and the Engineer. Seed shall be placed either by drilling in, spraying in a water mixture, or by use of a mechanical method which places the seed in direct contact with the soil. Where inaccessible to mechanical equipment, or where the area to be seeded is small, a hand operated cyclone seeder or other approved equipment may be used. Seed shall not be covered more than 1/2 in. Seed may be distributed by a drill seeder, cyclone seeder, hand or other approved equipment which allows for even distribution of the seed. If as a result of a rain event, the prepared seed bed becomes rutted, crusted or eroded, or depressions exist, the soil shall be reworked until it is smooth. Reworked areas shall be re-seeded. All seeded areas shall be mulched within 24 h after seeding.*

*Temporary seed shall be used for surface stabilization and temporary ground cover. Temporary cover mixtures shall be placed and be subject to seasonal limitations as defined herein. This mixture is not intended to be used as a permanent seed mixture. This mixture shall not be used to satisfy the requirements of the warranty bond.*

*The mix shall be spray mulched where the slope is steeper than 3:1. From June 16 through August 31, mulching alone shall be used to stabilize the soil.*

***(b) Spring Mix***

*Spring mix shall be used from January 1 through June 15. This mixture shall be applied at the rate of 150 lb/ac. The mix shall consist of oats.*

***(c) Fall Mix***

*Fall mix shall be used from September 1 through December 31. This mixture shall be applied at the rate of 150 lb/ac. This mix shall consist of winter wheat.*

*Unless otherwise indicated in the SWQCP, fertilizer shall be spread uniformly over the area to be seeded and shall be applied at 1/2 the rate shown in 621.05(a). Fertilizer shall only be applied during the active growing season March through November.*

***(d) Mulch***

*Mulch shall be applied uniformly in a continuous blanket at the rate of 2.5 t/ac. If seeded, mulch shall be placed within 24 h after seeding. The percent of moisture in the mulch shall be determined in accordance with 621.14(c).*

*Mulch shall be punched into the soil so that it is partially covered. The punching operation shall be performed longitudinally to the slope. The tools used for punching purposes shall be disks that are notched and have a minimum diameter of 16 in. The disks shall be flat or uncupped. Disks shall be placed a minimum of 8 in. apart. Shaft or axle sections of disks shall not exceed 8 ft in length.*

*The disk for punching shall be constructed so that weight may be added or hydraulic force may be used to push puncher into the ground. An even distribution of mulch shall be incorporated into the soil.*

*On a slope of 3:1 or steeper but flatter than 2:1, or where specified, temporary mulch stabilization shall also be used. Unless otherwise specified, the following types may be used.*

### **1. Type A**

*The mulch shall be held in place by means of commercially produced water borne mulch binder product. The product shall be manufactured and used in accordance with all applicable State and Federal regulations. Such product shall be applied in accordance with the manufacturer's written instructions. A copy of the written instructions shall be supplied to the Engineer prior to the seeding work. The product shall include a coverage indicator to facilitate visual inspection for evenness of application. If the mulch fails to stay in place, the Contractor shall repair all damaged areas.*

### **2. Type B**

*The mulch shall be held in place with binder twine fastened down with wooden pegs not less than 6 in. long spaced 4 ft apart. The twine shall be placed parallel to and also at 60° to the pavement edge in both directions. The distance between the intersections of the diagonal strands measured along the strands shall be 12 ft. The strand parallel to the pavement shall cross the diagonal strands at their intersections to form equilateral triangles of 12 ft on a side.*

### **3. Type C**

*The mulch shall be held in place with a polymeric plastic net. The plastic net shall be unrolled such that it lays out flat, evenly, and smoothly, without stretching the material. The plastic net shall be held in place by means of staples. The staples shall be driven at a 90° angle to the plane of the soil slope. Staples shall be spaced not more than 4 ft apart with rows alternately spaced. The plastic net shall be secured along the top and bottom of the soil slope with staples spaced not more than 1 ft on center. The ends and edges of the plastic net shall be overlapped approximately 4 in. and stapled. Overlaps running parallel to the slope shall be stapled 1 ft on center and overlaps running perpendicular to the slope shall be stapled at least 3 ft on center. The plastic net shall be placed with the length running from top of slope to toe of slope, or the plastic net shall be placed with the length running horizontally or parallel to the contour.*



*On a slope of 2:1 or steeper, or where specified, a manufactured surface protection product shall be used.*

**(c) Manufactured Surface Protection Products**

*The following manufactured surface protection products may be used for covering an area that has not been seeded. Soil cover shall not be used to cover seeded areas. Prior to placing the manufactured surface protection product, the area to be covered shall be free of all rocks or clods of over 1 1/2 in. in diameter, and all sticks or other foreign material, which prevent the close contact of the blanket with the seed bed.*

*After the area has been properly shaped, fertilized, and seeded, the manufactured surface protection product shall be laid out flat, evenly, and smoothly, without stretching the material.*

**1. Excelsior Blanket**

*An excelsior blanket may be used as mulch for seeding where seeding is specified or where erosion control blanket is specified. Excelsior blankets shall be placed within 24 h after seeding operations have been completed. Excelsior blankets shall be installed in accordance with the manufacturer's recommendation.*

**2. Straw Blanket**

*A straw blanket may be used as mulch for seeding where mulched seeding is specified or where erosion control blanket is specified. Straw blankets shall be placed within 24 h after seeding. The straw blanket shall be unrolled over the designated area so that the plastic mesh is on top and the straw fibers are snugly and uniformly in contact with the soil surface. The rolls shall be butted together and stapled in place. The staples shall be driven through the blanket at a 90° angle to the plane of the ground surface. Each staple shall anchor the plastic mesh. The staples shall be spaced per the manufacturer's recommendation.*

*For placement on a slope, the straw blankets shall be placed with the length running from the top of slope to the toe of slope and shall extend a minimum of 3 ft over the crown of the slope. The blanket shall be stapled in accordance with the manufacturer's recommendation.*

*For placement in ditch lines, the straw blanket shall be unrolled parallel to the centerline of the ditch. The blanket shall be placed so that there are no longitudinal seams within 24 in. of the bottom centerline of the ditch. In a ditch line, the blanket shall be stapled in accordance with the manufacturer's recommendation with a minimum of six staples across the upstream end of each roll.*

**3. Rolled Erosion Control Products**

*The Contractor shall use degradable RECPs including netting, open weave textile, and erosion control blankets.*

*Seed shall be applied in accordance with 621 unless soil infilling is required.*

*If soil infilling is required, RECP shall be first installed and then seed applied and brushed or raked 1/4 to 3/4 in. of topsoil into voids in the RECP filling the full product thickness. Staples of at least 6 in. in length shall be used to secure the RECP. The RECP shall be unrolled parallel to the primary direction of flow and placed in direct contact with the soil surface. RECP shall not bridge over surface inconsistencies. Edges of adjacent RECP shall be overlapped by 2 to 4 in. Staples shall be placed to prevent seam separation in accordance with the manufacturer's recommendations.*

#### **4. Geotextile**

*Disturbed soil shall be covered with geotextile. The covering shall be placed over the exposed soil in a shingle like fashion with a 2 ft minimum overlap covering all loose or disturbed soil. The geotextile, if new, shall be in accordance with 918.02. The geotextile used for soil covering need not be new but shall not have holes or unrepaired rips or tears. All repairs shall be made in accordance with the manufacturer's recommendation.*

### **205.05 Concentrated Flow Protection**

#### **(a) Check Dam**

*Check dams and modified check dams shall be constructed as shown on the plans. Geotextile for check dams shall be in accordance with 616 unless otherwise specified. Temporary revetment riprap shall be in accordance with 616. No. 5 and No. 8 filter stone shall be in accordance with 904.*

#### **(b) Check Dam, Traversable**

*Traversable check dams shall be composed of straw bales, 8 in. minimum diameter fiber rolls, or 8 in. minimum diameter socks filled with straw, ground wood chips, shredded bark, or other approved material for site specific conditions. Rolls and socks may be stacked in a triangle pattern as shown on the plans. Check dams shall be staked as shown on the plans or as directed by the manufacturer. Check dams shall be configured to eliminate gaps between sections. Straw bales shall be placed such that the bindings are parallel to and not in contact with the ground.*

#### **(c) Diversion Interceptors**

*Grading for diversion interceptors shall be in accordance with 203 with the exception that compaction requirements will not apply. The Contractor shall identify the construction areas which shall utilize diversion type A or B. Slope drains shall be provided at the low points of the diversion interceptor. Perimeter diversion, type C shall be installed prior to earth moving activities and shall be immediately stabilized. Type A or B shall be stabilized if anticipated to be left in place for more than seven calendar days.*

#### **(d) Sediment Traps**

*Sediment traps shall be constructed with revetment riprap, filter stone and geotextile.*

#### **(e) Sediment Basins**

*Embankment construction shall be in accordance with 203. Temporary revetment riprap used for overflow protection shall be in accordance with 904, unless otherwise indicated in the SWQCP. Sediment basins shall be constructed as shown on the plans, or as indicated in the SWQCP. Sediment basins shall be designed to provide a minimum storage volume to contain the runoff from a 10 year 24 h storm event.*

***(f) Slope Drains***

*Slope drain pipes shall be lengthened as required due to the construction of the embankment.*

***(g) Vegetative Filter Strips***

*Designated vegetative filter strips shall not be disturbed. Small rills that form shall be repaired. Fertilizer shall be applied as indicated in the SWQCP.*

***(h) Splashpads***

*Splashpads shall be constructed with revetment riprap with geotextile.*

***(i) Inlet Protection***

*All deck and curb drains shall have sediment control measures when the structure or road is to be used for hauling operations or adjacent to disturbed areas. Copies of all current manufacturers' installation manuals shall be provided prior to installation.*

***205.06 Perimeter Protection***

***(a) Silt Fence***

*Shipping, handling and storage shall be in accordance with the manufacturer's recommendations. The silt fence material shall be in accordance with 918.02(d). The silt fence material will be rejected if it has defects, tears, punctures, flaws, deterioration, or damage incurred during manufacture, transportation, storage, or installation. Each roll shall be labeled or tagged to provide product identification.*

*Joints shall be made from the ends of each section of fence wrapped around a wood stake and joined together or other method recommended by the manufacturer. Copies of all current manufacturer manuals shall be provided prior to installation.*

***(b) Filter Berm***

*Filter berms shall be constructed of organic mulch, filter sock, or No. 5 and No. 8 filter stone.*

***205.07 Maintenance***

*Storm water management measures shall be inspected, at a minimum, once every seven days and after a 1/2 in. rain event. Inspections shall be documented and records shall be maintained by the Contractor, to be submitted to the Engineer on the next business day following the inspection. The temporary protection measures shall be remedied within 48 h after inspection or as directed. The Contractor shall rebuild or repair damaged storm water management measures.*

*If conditions do not allow the Contractor access to the location of the storm water management features using normal equipment and maintenance, the Contractor shall submit to the Engineer an acceptable written alternate schedule, within 48 h, to bring the storm water management features back into compliance.*

**(a) Silt Fence**

*If the fence fabric tears, starts to decompose, or becomes ineffective, the affected portion shall be replaced. Deposited sediment shall be removed once it reaches 1/2 the height of the fence at its lowest point. Once the contributing drainage area has been stabilized, the Contractor shall remove the fence and sediment deposits, grade the site to blend with the surrounding area, and stabilize the graded area.*

**(b) Sediment Basin**

*Sediment shall be removed once it has accumulated to 1/2 the design volume. The filter stone around the riser pipe shall be replaced if the sediment pool does not drain within 72 h following a stormwater runoff event.*

**(c) Filter Berm**

*Accumulated sediment shall be removed once it reaches 1/4 of the height of the filter berm. The filter berm shall be inspected to ensure that it is holding its shape and allowing adequate flow. Eroded and damaged areas shall be repaired.*

**(d) Inlet Protection**

*Accumulated sediment shall be removed once identified and after each storm event. Flushing with water will not be allowed. The sediment shall not be allowed to re-enter the paved area or storm drains. Curb inlet inserts shall be cleaned in accordance with the manufacturer's recommendations.*

**(e) Sediment Traps**

*Following each storm event, the Contractor shall repair slope erosion and piping holes as required. Sediment shall be removed once it has accumulated to 1/2 design volume. The Contractor shall replace the coarse aggregate filter stone if the sediment pool does not drain within 72 h following a storm water runoff event.*

**(f) Concrete Washout**

*The containment system shall be inspected for leaks, spills, and tears, and shall be repaired or replaced as necessary. The Contractor shall ensure that each containment system maintains adequate capacity. Solidified waste concrete shall be disposed of in accordance with 202.*

**(g) Check Dams**

*Sediment shall be removed once it reaches 1/2 the height of the check dam. Sediment shall be removed and disposed of in accordance with 201.03 and 203.08. The Contractor shall rebuild or repair each damaged check dam to maintain the design height, cross section, and control function.*

**205.08 Quality Adjustments**

*If maintenance deficiencies are not remedied within 48 h after identifying them in the inspection and in accordance with 205.07, the Contractor may be assessed damages for failure to maintain the required storm water management. For each day, during which the following units of storm water management are in an unsatisfactory condition, a quality adjustment, in accordance with 109, will be assessed as shown for each day, per unsatisfactory unit.*

- (a) Silt Fence: \$100.00 per each contiguous 100 ft section or portion thereof*
- (b) Check Dam: \$100.00 per check dam*
- (c) Sediment Basin: \$100.00 per basin*
- (d) Sediment Trap: \$100.00 per trap*
- (e) Inlet Protection Devices: \$100.00 per unit*
- (f) Failure to inspect site per 327 IAC 15-5 requirements: \$100.00 per required inspection*
- (g) Failure to temporary stabilize non-vegetated areas: \$100.00 per acre or portion thereof*
- (h) Failure to correct identified deficiencies not defined above: \$100 per day per measure.*

*Silt fence will be considered unsatisfactory if the fence material has an exposed cut or tear exceeding 1 ft in length, a seam has separated or the retained sediment exceeds 1/2 of the height of the fence.*

*Check dams, sediment basins and sediment traps will be considered unsatisfactory if they no longer perform their function, or the retained sediment exceeds 1/2 of the design volume.*

*Inlet protection devices will be considered unsatisfactory if they no longer perform their function, or the accumulated sediment exceeds 1/2 of the capacity of the device.*

### **205.09 Removal**

*Storm water management measures shall be removed as soon as an area becomes stable. All storm water management measures shall be removed prior to application for the NOT. The Contractor shall remove and dispose of all excess silt accumulations, dress the area, and reestablish vegetation to all bare areas in accordance with the contract requirements. Use or disposal of storm water management measures shall be as indicated in the SWQCP.*

### **205.10 Method of Measurement**

*Temporary silt fence and traversable check dams will be measured by the linear foot.*

*Temporary sediment basins, standard metal end sections and temporary inlet protection will be measured by each unit installed.*

*Temporary revetment riprap check dams, temporary revetment riprap, temporary sediment traps, splashpads, temporary filter stone, temporary mulch, No. 2 stone for stable construction entrances, and fertilizer will be measured by the ton.*

*Temporary mulch stabilization, manufactured surface protection products, and temporary geotextile will be measured by the square yard.*

*Temporary seeding will be measured by the pound.*

*Removal of sediment will be measured by the cubic yard.*

*Temporary slope drains will be measured by the linear foot. Measurement will be made for the maximum footage in place at one time, per drain location regardless of the number of times the material is moved.*

*Temporary filter berms and filter sock will be measured by the linear foot complete in place.*

*Revetment riprap and filter stone used in sediment basins will be measured by the ton.*

*Excavation for detention ponds, temporary sediment traps and temporary sediment basins will be measured as common excavation in accordance with 203.27.*

*Diversion interceptors type A and B, and interceptor ditches will not be measured for payment. Diversion interceptors type C will be measured by the linear foot.*

*Mobilization and demobilization for surface stabilization will be measured per each trip as provided in the submitted and accepted SWQCP.*

*Weekly inspections will be measured by each for inspections conducted after the contract completion date.*

*SWQCP Preparation and Implementation Level 1 and Level 2 will not be measured.*

*BMPs used at the off-site locations designated in 205.03 and concrete washouts will not be measured for payment.*

#### ***205.11 Basis of Payment***

*The accepted quantities of silt fence and traversable check dams will be paid at the established unit price per linear foot.*

*Temporary sediment basins, standard metal end sections, and temporary inlet protection will be paid at the established unit price per each unit installed.*

*Temporary revetment riprap check dams, temporary revetment riprap, temporary sediment traps, splashpads, temporary filter stone, temporary mulch, No. 2 stone for*

*stable construction entrances, and fertilizer will be paid at the established unit price per ton.*

*Temporary mulch stabilization, manufactured surface protection products, and temporary geotextile will be paid at the established unit price per square yard.*

*Temporary seeding will be paid at the established unit price per pound.*

*Removal of sediment will be paid at the established unit price per cubic yard.*

*Temporary slope drains, temporary filter berms, and filter sock will be paid at the established unit price per linear foot.*

*Revetment riprap and filter stone used in sediment basins will be paid at the established unit price per ton.*

*The accepted quantities of excavation for detention ponds, temporary sediment traps, and temporary sediment basins will be paid for as common excavation in accordance with 203.28.*

*Diversion interceptors type C will be paid at the established unit price per linear foot.*

*Payment for mobilization and demobilization for surface stabilization will be paid at the established unit price per each and will be made for the initial movement to the project site, and for each occurrence as indicated in the submitted and accepted SWQCP, or as directed.*

*Weekly inspections will be paid at the established unit price per each for inspections conducted after the contract completion date. No payment will be made for inspections during the time when liquidated damages in accordance 108.09 are assessed.*

*The Department will include the pay item Storm Water Management Budget, with an established dollar amount, in the proposal to pay for BMP work. This established amount is the Department's estimate of the total cost of the BMP work required to be performed for the contract. The established amount shown in the proposal is included in the total bid amount. The Department will pay for those items installed and listed with established prices for the quantities installed as indicated in the submitted and accepted SWQCP. If the BMP work exceeds the Department's estimated amount, the additional BMPs shall be explained and submitted as a revision to the SWQCP. The additional work will be reviewed for acceptance in accordance with 104.03 except that the additional BMP work will be paid at the pre-determined established prices shown.*

*The Department will pay to replace BMPs that have failed during a rain event at the unit price shown in 205.11 if those BMPs had been adequately designed based on the watershed, installed correctly, and maintained as necessary.*

*The item SWQCP Preparation and Implementation Level 1 will be paid when a Level 1 SWQM is designated in the contract documents. The item SWQCP Preparation and Implementation Level 2 will be paid when a Level 2 SWQM is designated in the contract documents. The item SWQCP Preparation and Implementation Level 1, or Level 2 will be paid as a lump sum. After the SWQCP has been submitted, 25% of the SWQCP Preparation and Implementation bid price will be paid. If the SWQCP is submitted in phases, 25% of the SWQCP Preparation and Implementation bid price will be paid after the first phase of the SWQCP has been submitted. The balance will be paid as the plan is implemented over the life of the contract.*

*Items shown with an established price will be paid at the prices shown. If any of the following items are shown in the schedule of pay items the bid item and price will prevail over the established prices shown.*

*Payment will be made under:*

<b><i>Pay Item</i></b>	<b><i>Pay Unit Symbol</i></b>	<b><i>Established Price</i></b>
<i>Diversion Interceptor Type C.....</i>	<i>LFT.....</i>	<i>\$20.00</i>
<i>Fertilizer .....</i>	<i>TON.....</i>	<i>\$725.00</i>
<i>Filter Sock.....</i>	<i>LFT.....</i>	<i>\$5.00</i>
<i>Manufactured Surface Protection Product .....</i>	<i>SYS .....</i>	<i>\$1.25</i>
<i>Mobilization and Demobilization for</i>		
<i>Surface Stabilization .....</i>	<i>EACH .....</i>	<i>\$650.00</i>
<i>No. 2 Stone.....</i>	<i>TON.....</i>	<i>\$25.00</i>
<i>Sediment, Remove .....</i>	<i>CYS.....</i>	<i>\$20.00</i>
<i>Splashpad.....</i>	<i>TON.....</i>	<i>\$55.00</i>
<i>Standard Metal End Section.....</i>	<i>EACH .....</i>	<i>\$340.00</i>
<i>Storm Water Management Budget .....</i>	<i>DOL</i>	
<i>SWQCP Preparation and Implementation, Level 1 .....</i>	<i>LS</i>	
<i>SWQCP Preparation and Implementation, Level 2 .....</i>	<i>LS</i>	
<i>Temporary Check Dam, Revetment Riprap.....</i>	<i>TON.....</i>	<i>\$50.00</i>
<i>Temporary Check Dam, Traversable .....</i>	<i>LFT.....</i>	<i>\$15.00</i>
<i>Temporary Filter Berm .....</i>	<i>LFT.....</i>	<i>\$15.00</i>
<i>Temporary Filter Stone .....</i>	<i>TON.....</i>	<i>\$40.00</i>
<i>Temporary Geotextile.....</i>	<i>SYS .....</i>	<i>\$2.50</i>
<i>Temporary Inlet Protection.....</i>	<i>EACH .....</i>	<i>\$100.00</i>
<i>Temporary Mulch Stabilization.....</i>	<i>SYS .....</i>	<i>\$0.25</i>
<i>Temporary Mulch.....</i>	<i>TON.....</i>	<i>\$400.00</i>
<i>Temporary Revetment Riprap .....</i>	<i>TON.....</i>	<i>\$50.00</i>
<i>Temporary Sediment Basin .....</i>	<i>EACH .....</i>	<i>\$3,000.00</i>
<i>Temporary Sediment Trap.....</i>	<i>TON.....</i>	<i>\$40.00</i>
<i>Temporary Seed .....</i>	<i>LBS.....</i>	<i>\$2.50</i>
<i>Temporary Silt Fence.....</i>	<i>LFT.....</i>	<i>\$2.00</i>
<i>Temporary Slope Drain.....</i>	<i>LFT.....</i>	<i>\$20.00</i>
<i>Weekly Inspection.....</i>	<i>EACH .....</i>	<i>\$400.00</i>



*The cost associated with revisions to permits shall be included in the cost of SWQCP Preparation and Implementation.*

*The cost for trenching, backfilling, posts, fencing, and all necessary incidentals shall be included in the cost of the pay item for temporary silt fence.*

*The cost for stakes, trenching, backfilling, posts, and all necessary incidentals shall be included in the cost of the pay item for temporary check dams, traversable.*

*The payment for temporary sediment basin shall include all costs involved with construction of the basin except for excavation, revetment riprap, and filter stone.*

*The payment for temporary sediment trap shall include all costs involved with construction of the trap except for excavation.*

*Temporary entrances utilized by the Contractor for borrow and waste areas will not be paid for directly.*

*The costs for diversion interceptor types A and B and interceptor ditches shall be included in the cost of the earth moving items.*

*The cost for anchors and all incidentals necessary to perform the work shall be included in the cost of the pay item for temporary slope drains.*

*The cost of materials, installation, inspection, maintenance, and removal of storm water management measures at off-site locations designated in 205.03 will not be measured for payment.*

*The payment for BMPs in this section shall include materials, installation, maintenance, removal and proper disposal, except for the removal of sediment.*

*The cost associated with sediment removal and temporary filter stone replacement due to BMP maintenance shall be included in the cost of the pay item for sediment removal.*

*The cost of constructing, maintaining, and removal of the construction entrance, other than those constructed by the Contractor for borrow and waste sites, shall be included in the cost of No. 2 stone. No direct payment will be made for construction entrances for borrow and waste sites.*

*The cost associated with concrete washout shall not be paid for directly, but shall be included in the costs of the concrete pay items.*

*The costs associated with the weekly and post-event inspections and all other inspections conducted prior to the original contract completion date shall be included in the costs of the other pay items of this section.*